

**From:** Battaglia, Frank  
**Sent:** Friday, April 22, 2016 4:55 PM  
**To:** Joseph Guarnaccia; Lynch, Joanne  
**Subject:** RE: Former Ciba-Geigy Property, 180 Mill St, Cranston, RI - CMS DRAFT Final Text & Figure Revisions - EPA APPROVAL  
**Attachments:** BASF\_CMS\_DRAFT\_Final 2016-02-22.docx; Figure\_18A\_Soil\_Selected\_Remedey.pdf; Figure\_18B\_Soil\_Selected\_Remedey.pdf

Joanne/Joe:

EPA has completed its review of the attached revised draft Final Corrective Measures Study (CMS) Report submitted on February 22, 2016 for the former Cranston, Rhode Island facility. After careful review, EPA APPROVES these changes and the CMS report in its entirety. Please submit a hard copy of the final CMS Report incorporating all changes with all attachments and figures along with an electronic version to EPA. The paper and electronic documents will be needed for the administrative record at the EPA New England Region 1 office in Boston. We can discuss the need for other copies and the next steps in a conference call next week or when you are available. Please give me a call at 617 918-1362 to discuss.

Sincerely,

Frank Battaglia, EPA RCRA Facility Manager  
617 918-1362

**From:** Lynch, Joanne [mailto:Joanne.Lynch@aecom.com]  
**Sent:** Monday, February 22, 2016 2:02 PM  
**To:** Battaglia, Frank <battaglia.frank@epa.gov>  
**Cc:** Joseph Guarnaccia <joseph.guarnaccia@basf.com>; Hellerich, Lucas <Lucas.Hellerich@aecom.com>; Henderson, Rory <Rory.Henderson@aecom.com>; Hansel, Kelly <Kelly.Hansel@aecom.com>; Atter, Steve <Steve.Atter@aecom.com>  
**Subject:** Former Ciba-Geigy Property, 180 Mill St, Cranston, RI - CMS DRAFT Final Text & Figure Revisions - For Your Review and Approval

Frank – Attached is the revised text of the BASF Corrective Measures Study for 180 Mill St, Cranston, RI in red-line-strike-out format. The text reflects changes in response to EPA comments provided to BASF on 1/29/16. Below is a memorandum from Joe Guarnaccia at BASF that explains the text modifications. Please do not hesitate to contact me if you have any comments or questions. Best Regards, Joanne

*From the desk of Joseph Guarnaccia (BASF):*

01/29/2016  
Frank,

This is a CMS revision that addresses the issues you raised with me on 1/29 when we spoke. Specifically, we altered the Executive Summary and Section 6 and some figures to add the following information:

1. River cap: Provide the following,
  - a. The basis for the 13' as a flood trigger.
  - b. There needs to be a finish point based on future monitoring (an out).
  - c. Details on the cap monitoring are needed.

2. River lot, soil – Detail added:

- a. Reference that the remedy will follow TSCA rules and meet RIDEM criteria. 4 Phases: [1] Remove >50ppm and verification sampling; [2] Remove >10ppm and verification sampling; [3] Consolidate, put down witness barrier, and cap >1ppm. Where cleared < 1ppm, confirmatory sampling. The cap will be completed to support diverse upland habitat (an example added); [4] ELUR to be approved by the DEM.
- b. Detailed implementation design and sampling and performance monitoring plans will be developed following this outline.

3. River Lot – GW –detail added:

- a. Upland, remove VOC-impacted soil and mix in chemical oxidant to destroy mass in-situ.
- b. Along the river: install and operate a reactive barrier – inject/percolate O3 into the upland aquifer along a transect parallel to the bulkhead to destroy VOC mass in-situ before to can migrate offsite. Describe the plan: [1] pilot test to determine design parameters, specifically: spacing of injection points, orientation of injection points (H or V), need for aquifer permeability enhancement to improve contact and continuity. Describe performance sampling: sample GW upstream, at, and downstream of the wall. Sample for VOC, geochemistry, etc. [2] Install the full scale system based on pilot-driven design. Performance monitoring will be used to operate the barrier and determine its effectiveness, and determine its need over time. Performance will be concentration-based, below MPS. ISCO will support aerobic biodegradation, which is a component of natural attenuation.
- c. Site-wide – MNA – over time, in concert with and in lieu of ISCO efforts, monitor groundwater conditions to determine whether natural attenuation is sufficient to address residual groundwater impact such that the river receptor is protected. Monitoring parameters include, ...
- d. Detailed implementation design and sampling and performance monitoring plans will be developed following this outline.

Joanne M. Lynch, M.Sc., P.Eng.

Environmental Engineer

D 978.905.2296

C 978.496.0589

[joanne.lynch@aecom.com](mailto:joanne.lynch@aecom.com)



250 Apollo Drive, Chelmsford, MA 01824

T 978.905.2100 F 978.905.2101

[www.aecom.com](http://www.aecom.com)

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